

I Claim:

1. An apparatus for removing foreign particles from a rotary press having a plate cylinder rotated by a press drive and a form roller normally in rotational contact with the plate cylinder, the apparatus comprising:  
  
a variable speed servo motor separate from the press drive and directly coupled to the form roller; and  
  
a controller for the variable speed servo motor, which controller is settable to maintain any one of several different relative surface speeds between the first form roller and the plate cylinder.
2. The apparatus of claim 1 further comprising a sensor for sensing the speed of at least one of the plate cylinder, form roller or the press drive, wherein said sensed speed is used by the controller to maintain a selected surface speed differential.
3. The apparatus of claim 1 wherein the press has multiple form rollers.

4. The apparatus of claim 3 wherein the form roller to which the variable speed servo motor is coupled is the first roller to apply ink to the plate cylinder after the plate cylinder contacts a blanket cylinder of the press.

5. The apparatus of claim 1 wherein the apparatus is adapted to retrofit an existing press having at least one form roller.

6. The apparatus of claim 1 wherein the form roller is directly coupled to the variable speed servo motor by a belt drive.

7. The apparatus of claim 1 wherein the form roller is directly coupled to the variable speed servo motor by one of a toothed belt drive, a chain drive, a telescoping shaft drive or a gear drive.

8. The apparatus of claim 1 wherein a constant selected surface speed differential is maintained between the form roller and the plate cylinder while the press speed varies.

9. The apparatus of claim 1 wherein relative surface speeds between 40 and 120 feet per minute are selectable for printing operation and a zero surface speed differential is selectable for another press operation mode.

10. The apparatus of claim 1 further comprising at least one roller temperature sensor and wherein a surface speed differential is controlled responsive to the sensed roller temperature.

11. The apparatus of claim 1 wherein the variable speed servo motor selectively applies a braking action to the first form roller.

12. The apparatus of claim 1 wherein the variable speed servo motor selectively drives the first form roller at a higher surface speed than the plate cylinder.

13. The apparatus of claim 1 wherein the controller is programmed to select different surface speed differentials responsive to press operating modes.

14. The apparatus of claim 13 wherein the press operating modes and surface speed differentials include

make-ready: optimum surface speed differential;

printing: continuously varying the drive or braking to adjust for varying press speeds; and

wash-up: no surface speed differential.

15. An apparatus for improving print quality in a rotary offset press having a plate cylinder rotated by a press drive and at least one roller for applying ink to the plate cylinder, the ink-applying roller being in adjustable pressural rotational contact with the plate cylinder during printing, the apparatus comprising:

a variable speed servo motor for selectably applying a braking action to the ink-applying roller;

a sensor for sensing the speed of at least one of the plate cylinder or the press drive; and

a controller for the variable speed servo motor for maintaining a selected surface speed differential between the plate cylinder and the at least one ink applying roller during printing.

16. The apparatus of claim 15 wherein the ink-applying roller is directly coupled to the variable speed servo motor by a belt drive.

17. The apparatus of claim 15 wherein the ink-applying roller is directly coupled to the variable speed servo motor by one of a toothed belt drive, a chain drive, a telescoping shaft drive or a gear drive.

18. The apparatus of claim 15 wherein the maintained surface speed differential is between 40 and 120 feet per minute for printing operation and a zero surface speed differential is selectable for other press operation modes.

19. A method for removing foreign particles from the plate cylinder of an offset press being inked by at least one form roller comprising the steps of:

driving the plate cylinder with the press drive;

sensing the speed of rotation of the plate cylinder;

placing the at least one form roller in pressural rotational contact with the plate cylinder to apply ink thereto;

varying the speed of the at least one form roller with a servo motor;

sensing the speed of the at least one form roller; and

applying a torque to the form roller with the servo motor based on the sensed speed of the at least one form roller to produce a speed differential between the at least one form roller and the plate cylinder to thereby remove foreign particles from the plate cylinder.

20. The method of claim 19 wherein a selected surface speed differential maintained during printing is between 40 and 120 feet per minute.

21. The method of claim 19 wherein a selected surface speed differential maintained during printing is between 60 and 100 feet per minute.
22. The method of claim 19 wherein a selected surface speed differential maintained during printing is 80 feet per minute.
23. The method of claim 19 further comprising the step of producing essentially no surface speed differential during wash-up.
24. The method of claim 18 wherein the servo motor applies dynamic braking action.